Progression in Science at Bramley Sunnyside Infant School

Plants		
Area of Learning	**National Curriculum Content**	
ELG • Explore the natural world around them, making observations and drawing pictures of animals and plants • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class	**Year One** • Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • Identify and describe the basic structure of a variety of common flowering plants, including trees.	**Year Two** • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
EYFS Guidance	**Year One Guidance**	**Year Two Guidance**
<u>(3-4 years)</u> Plant seeds and care for growing plants (concept of growth and decay) • Understand the key features of the life cycle of a plant • Observe plants closely through a variety of means e.g. magnifiers & photographs • Extend vocabulary: leaves, petals, roots, bulb, trunk, branches, stem, garden plants, wild plants, seeds **<u>Reception</u>** Plant seeds and care for growing plants (concept of growth and decay) Give opportunities to design practical, attractive environments, for example, taking care of the flowerbeds or organising equipment outdoors. Talk about how plants look are they the same/different? Talk about the changes. Name & describe some plants • Identify familiar plants • Draw pictures of plants	Use the local environment throughout the year to explore and answer questions about plants growing in their habitat. Observe the growth of flowers and vegetables that they have planted. Become familiar with common names of flowers, examples of deciduous and evergreen trees, and plant structures (including leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches, stem). **Work Scientifically By**: Observing closely, perhaps using magnifying glasses. Comparing and contrasting familiar plants. Describing how they were able to identify and group them. Draw diagrams showing the parts of different plants including trees. keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; Compare and contrast what they have found out about different plants.	Use the local environment throughout the year to observe how different plants grow. Be introduced to the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants. Note: Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them. **Work Scientifically By:** Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, Observing similar plants at different stages of growth. Setting up a comparative test to show that plants need light and water to stay healthy.

• Talk about things they have seen outside including plants. Extend vocabulary: leaves, petals, roots, bulb, trunk, branches, stem, garden plants, wild plants, seeds Understand the key features of the life cycle of a plant. Observe plants closely through a variety of means e.g. magnifiers, models, & photographs Practitioners to use the correct terms so that, e.g. children use its correct name e.g. seed, bulb, root, flower, plant, fruit vegetable. Pose carefully framed open-ended questions, such as “How can we…?” or “What would happen if…?”. • Describe what they see, hear & feel whilst outside (senses) • Understand the effect of changing seasons on the natural world around them (weather and seasonal features) **<u>Might</u> work Scientifically By**: Talk about things like plants. Look at plants and question - What is the same? What is different? Use my senses and look closely at plants. Create simple representations of plants.		

Progression in Science at Bramley Sunnyside Infant School

Animals Including Humans		
Area of Learning	**National Curriculum Content**	
EYFS **The Natural World: 3-4 years** Understand the key features of the life cycle of an animal. Begin to understand the need to respect and care for the natural environment and all living things. **ELG: The Natural World** Explore the natural world around them, making observations and drawing pictures of animals. **ELG: Managing self** Manage their own personal hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.	**Year One** • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	**Year Two** • Notice that animals, including humans, have offspring which grow into adults • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
EYFS Guidance	**Year One Guidance**	**Year Two Guidance**
<u>Animals and Humans</u> **<u>3-4 years</u>** Observe animals closely through a variety of means e.g. magnifiers & photographs Understand the key features of the life cycle of an animal. **<u>Reception</u>** Be able to show care and concern for living things. Talk about what humans and animals need to grow and how they change over time. Describe what they see, hear, smell & feel (senses). Talk about how animals and how people look – are they the same/different. Talk about things they have seen outside including animals. Name and describe some animals.	Use the local environment throughout the year to explore and answer questions about animals in their habitat. Understand how to take care of animals taken from their local environment and the need to return them safely after study. Become familiar with the common names of some fish, amphibians, reptiles, birds and mammals, including those that are kept as pets. Have plenty of opportunities to learn the names of the main body parts (including head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) through games, actions, songs and rhymes. **Work scientifically by:**	Be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. Be introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth. E.g. egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep, baby, toddler, child, teenager, adult. **Work scientifically by**: Observing, through video or first-hand observation and measurement, how different animals, including humans, grow Asking questions about what things animals need for survival and what humans need to stay healthy. Suggesting ways to find answers to their questions.

Identify familiar animals. Make observational drawings of animals Encourage children to observe how animals behave differently as the seasons change. **<u>Managing Self</u>** 3-4 years Start to eat independently and learn how to use a knife and fork. Acknowledge and encourage children's efforts to manage their personal needs, E.g. putting coats on and doing up zips. Make healthy choices about food and drink. Be increasingly independent in meeting their own care needs e.g. brushing teeth, using the toilet, and washing and drying hands thoroughly. Make healthy choices about food, drink, activity and tooth brushing. **<u>Reception</u>** Manage their own needs. Know and talk about the different factors that support their overall health and wellbeing: regular physical activity, healthy eating, tooth brushing, sensible amounts of screen time, having a good sleep routine, and being a safe pedestrian. Further develop their skills they need to manage the school day successfully E.g. mealtimes and personal hygiene. **Might Work Scientifically by:** Talk about and question why things happen to my body during exercise. To test my ideas e.g. What makes me cooler?	Using their observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat; and using their senses to compare different textures, sounds and smells.	

Living Things and Their Habitats (Foundation and Y2 0nly)
National Curriculum Content
ELG (The natural world) •Explore the natural world around them, making observations and drawing pictures of animals and plants •Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class •Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. **3-4 years** • Begin to understand the need to respect & care for the natural environment & all living things • Talk about what they see, using a wide vocabulary. • Explore collections of living things with similar and/ or different properties. • Understand the key features of the life cycle of a plant or animal e.g. Butterfly. **Reception** • Explore the natural world around them. • Describe what they see, hear and feel whilst outside – focused observation of the natural world. • Discuss where animals might live. • Discuss how we care for the natural world around us. . Understand the key features of the life cycle of a plant or animal e.g. Frog, Chicken • After close observation, draw pictures of the natural world, including animals and plants
Year Two • Explore and compare the differences between things that are living, dead, and things that have never been alive • Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including microhabitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.

Year Two Guidance
Be introduced to the idea that all living things have certain characteristics that are essential for keeping them alive and healthy. Raise and answer questions that help them to become familiar with the life processes that are common to all living things. Be introduced to the terms 'habitat' (a natural environment or home of a variety of plants and animals) and 'micro-habitat' (a very small habitat, for example for woodlice under stones, logs or leaf litter). Raise and answer questions about the local environment that help them to identify and study a variety of plants and animals within their habitat and observe how living things depend on each other, for example, plants serving as a source of food and shelter for animals. Compare animals in familiar habitats with animals found in less familiar habitats, for example, on the seashore, in woodland, in the ocean, in the rainforest. **Work scientifically by:** sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts. Describe how they decided where to place things, exploring questions for example: 'Is a flame alive? Is a deciduous tree dead in winter?' and talk about ways of answering their questions. Construct a simple food chain that includes humans (e.g. grass, cow, human). Describe the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the conditions affect the number and type(s) of plants and animals that live there.

Seasonal Changes (EYFS and Y1 only)	
Area of Learning	**National Curriculum Content**
EYFS **<u>ELG: The Natural world</u>** • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	**Year One** • Observe changes across the four seasons • Observe and describe weather associated with the seasons and how day length varies.
EYFS Guidance	**Year One Guidance**
Talk about and name the seasons, Autumn, Winter, Spring, Summer. Introduce new words about the weather e.g. – hot, cold, warm, dark, light, cloudy, foggy, snow. Talk about changes e.g. seed to sunflowers, ice to water. Sing songs about the days of the week and the weather. Go on seasonal walks. **Work scientifically by**: Noticing differences in the seasons. Noticing similarities in the seasons. Make observations of the weather. Builds up vocabulary of the seasons/weather.	Observe and talk about changes in the weather and the seasons. Know that it is not safe to look directly at the Sun, even when wearing dark glasses. **Work scientifically by:** Making tables and charts about the weather (daily dashboard Maths) Making displays of what happens in the world around them, including day length, as the seasons change.

(Uses 0f) Everyday Materials		
Area of Learning	**National Curriculum Content**	
EYFS **ELG: Expressive Arts and Design (Materials)** • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories.	**Year One** • Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties.	**Year Two** • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
EYFS	**Year One Guidance**	**Year Two Guidance**
<u>3-4 years</u> Use all their senses in hands-on exploration of natural materials. Explore different materials freely in order to develop their ideas and how to use them and what to make. Develop own ideas and then decide which materials to use to express then. Join different materials and explore different textures. Explore colour and colour mixing. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary Explore how things work e.g. pulleys, cogs, pegs & boards. Explore & talk about different forces they can feel e.g. stretch, snap, rigid, magnetic repulsion, water pushing up when pushing a boat under it. Talk about the differences between materials and changes they notice e.g. cooking, melting, shadows, floating & sinking.	Explore, name, discuss and raise and answer questions about everyday materials. Become familiar with the names of materials and properties such as: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent. Explore and experiment with a wide variety of materials, not only those listed in the programme of study, but including for example: brick, paper, fabrics, elastic, foil. **Work Scientifically By**: Performing simple tests to explore questions, for example: 'What is the best material for an umbrella? ...for lining a dog basket? ...for curtains? ...for a bookshelf? ...for a gymnast's leotard?'	Identify and discuss the uses of different everyday materials Become familiar with how some materials are used for more than one thing e.g (metal can be used for coins, cans, cars and table legs; or how different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). Think about the properties of materials that make them suitable or unsuitable for particular purposes. Consider unusual and creative uses for everyday materials e.g find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam. **Work scientifically by:** Comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); Observing closely, identifying and classifying the uses of different materials, and recording their observations.

Characteristics of liquids & solids e.g. cooking eggs, melting chocolate, putting salt onto ice cubes. **Reception** Explore. use and refine a variety of artistic effects to express their ideas and feelings. Create collaboratively sharing ideas and feelings. Observe & interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object & a boat floating on water. Model the vocabulary needed to name specific features of the natural world, both natural & man-made Talk to children about ways of finding out what they can do with different media and what happens when they put different things together such as sand, paint and sawdust. Encourage children to notice changes in properties of media as they are transformed through becoming wet, dry, flaky or fixed. Talk about what is happening, helping them to think about cause and effect. **Might work Scientifically By:** Talk about the similarities of a variety of materials. Talk about the differences of a variety of materials. Use tools and equipment carefully e.g. when using scissors. Have my own ideas when using/experimenting with a variety of materials. Question why things happen when experimenting with a variety of materials.		